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New Subspecies and Records of Birds from the Karimui Basin, New Guinea

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The present paper is preliminary to a full report on birds collected in the southern parts of the New Guinea Eastern Highlands in 1964 and 1965. In 1964 John Terborgh and I collected at several localities about 50 miles south of the Wahgi Valley, and the following year I returned to make a closer study of one of the localities, the Karimui Basin. This is a flat plain at an elevation several thousand feet lower than most of the surrounding Highland plateau, and effectively cut off from the plateau by mountains rising up to 9000 feet. The isolation of lowland bird populations within this mountain-ringed basin has evidently been sufficient to permit the evolution of several endemic subspecies, which are generally darker in color than related forms from other parts of New Guinea. The lower hill slopes between 1600 and 4500 feet also yielded some new forms, since the nearest points in the southern watershed that had been systematically explored ornithologically were the Fly River to the west and the Wharton Range to the southeast. The avifauna of the Eastern Highlands above 5000 feet is well known as a result of collections made in the vicinity of the Wahgi Valley between 1950 and 1952 by Gilliard (Mayr and Gilliard, 1954), Gyldenstolpe (1955), and Shaw-Mayer (Sims, 1956).

The principal localities mentioned below are:

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Karimui (elevation 3650 feet), a patrol post in the Karimui Basin, 50 miles southwest of Goroka.

Bomai (elevation 3250 feet), a patrol post in the Karimui Basin about 12 miles west of Karimui.

Mt. Karimui, a 8700-foot peak 6 miles south of Karimui, forming part of the south wall of the basin. Camps 1 through 8 refer to a series of camps separated from one another by vertical distances of 500 feet along the west ridge of Mt. Karimui.

Soliabeda (elevation 2000 feet), a village 9 miles southeast of Karimui and beyond Mt. Karimui, i.e., outside the basin.

Mt. Michael, a 12,300-foot peak 40 miles south of Goroka.

Awande (elevation 6300 feet), a village 40 miles southeast of Goroka and 2 miles west of Okapa Patrol Post.

Okasa, a forestry camp (elevation 4200 feet) at a stand of *Araucaria* pines 9 miles southeast of Awande.

Accipiter novaehollandiae leucosomus (Sharpe)

MATERIAL AND MEASUREMENTS: Karimui: one male (skin); August 3, 1965; culmen from cere, 17 mm.; wing, 217 mm.; tail, 162 mm. One specimen preserved in alcohol; July 28, 1964; culmen from cere, 17 mm.; wing, 215 mm.; tail, 159 mm. (presumably male, from the measurements). Soft parts: bill, black; cere, yellow-orange; iris, yellow-orange; legs, dull yellow; claws, black.

Both specimens are melanistic, the whole plumage being a uniform dark gray-brown. Apparently the only other record of melanism in this species is a female (A.M.N.H. No. 532834) collected at 2500 feet in the Hydrographer Mountains of southeast New Guinea and discussed by Stresemann (1925). This individual is less dark than the Karimui skin. The measurements of the Karimui birds fall within the normal range for *leucosomus*.

As is well known, this species has both a white and a colored phase, the relative frequencies varying geographically. In New Guinea (subspecies *leucosomus*) both phases occur, with the colored form being more numerous in the east. Only the colored phase is known from Misima and Tagula islands (subspecies *misulae*), from Fergusson and Goodenough islands (subspecies *pallidimas*), or from the Trobriand Islands, Woodlark Island, and the Bonvouloir Group. On the other hand, the white phase is characteristic of Tasmania.

It is quite possible that the population in the Karimui Basin consists solely of birds in the melanistic phase. During my stay at Karimui, I observed melanistic individuals, similar to those collected, on eight occasions, always solitary and generally in bare trees standing in second-growth or at the edges of native gardens. The call is a series of eight to 10 thin, unhurried, upslurred, nearly disyllabic notes, similar to de-

scriptions of the call of Australian *Accipiter novaehollandiae* (Cayley, 1959). My native shoot-boys, who were instructed to be particularly on the alert for these birds, reported observing or chasing individuals several times, including one individual at Bomai in the western part of the basin, and finally succeeded in collecting the 1965 male described above. Despite efforts to obtain hawks of all kinds, which resulted in our securing even such rarities as *Accipiter bürgersi* and *Megatriorchis doriae*, no examples of *Accipiter novaehollandiae* in the white phase or colored phase were observed or collected. The conspicuous white phase is especially unlikely to have escaped our notice if it had been present. It seems safe to conclude that the melanistic phase, if not the sole one present, is at least the predominant phase at Karimui.

The range of abundance of melanism may be confined to the Karimui Basin. Immediately to the south, during an 11-day stay at Soliabeda I did not encounter this species. The area of the Highlands to the north of Karimui is sufficiently well known ornithologically from the collections of Gilliard, Gyldenstolpe, and Shaw-Mayer to warrant confidence that this lowland species is absent there, nor would it be expected on account of the elevation. To the west the Fly River was explored ornithologically by d'Albertis and by the Archbold Expeditions, and numerous collections have been made in the southeast, but among many specimens of this species only the single melanistic one from southeast New Guinea mentioned above was obtained. *Accipiter novaehollandiae* thus provides the interesting case of a hawk with both localized melanistic and white populations.

Falco cenchroides cenchroides Vigors and Horsfield

MATERIAL: Karimui, five females; Bomai, one female.

MEASUREMENTS AND WEIGHTS: Culmen from cere, 14.5–15.0 mm.; wing, 240–264 mm. (average 255); tail, 145–160 mm. (average 154); weight, 154–189 grams (average 167).

REMARKS: This is the first record of this Australian race for New Guinea. The distinct race *baru* is known only from the vicinity of Mt. Wilhelmina in the Oranje Mountains above 10,500 feet, and differs in having the crown, nape, and tail gray, the back more richly colored, a deeper color below, and dark markings on the under-wing coverts. Other records of the race *cenchroides* outside Australia include stragglers to New Zealand, Java, Babbar, and a single record each from the Aru Islands and from Ceram. Stresemann (1914) mentioned that these extralimital records are nearly always females, and the present series (all females) fits this pattern.

TABLE 1
COMPARATIVE MEASUREMENTS (IN MILLIMETERS) OF THE WING
IN SOUTH COAST RACES OF *Domicella lory*
(Averages are given in parentheses.)

<i>somu</i>		
Karimui and vicinity		
6 males		153-166 (158)
6 females		144-156 (151)
<i>erythrothorax</i>		
Southeast New Guinea		
8 males		154-165 (162)
2 females		152-157 (154.5)
<i>rubensis</i>		
Fly River		
9 males		151-158 (155)
8 females		141-156 (146)
Snow Mountains and Weyland Mountains		
6 males		144-159 (151)
3 females		147-153 (149)

This falcon was frequently observed flying over Karimui and Bomai airstrips. A hawk shot and photographed by the patrol officer at Karimui in 1963 also belongs to this race.

***Domicella lory somu*, new subspecies**

TYPE: A.M.N.H. No. 786036; adult female; Soliabeda, Gulf District, Papua, 2000 feet; July 22, 1965; J. M. Diamond.

DIAGNOSIS: Nearest to *erythrothorax* and *rubensis* (e.g., in extent of blue-violet on belly and in that under-wing coverts are red), but differing from these and all other races in absence of dark band across hind neck. Under-tail coverts darker, more violet, and less blue than in *rubensis*, and close to *erythrothorax* in this respect. Intermediate in size between *rubensis* and *erythrothorax* (table 1).

RANGE: KNOWN at present from the Karimui Basin and area immediately to the south, and from Port Romilly at the mouth of the Purari River; probably from the intervening Purari drainage area as well.

MATERIAL: Karimui, one male, two females; Mt. Karimui, camp 1 (4200 feet), one male; Bomai, two males, two females; Soliabeda, two males, two females.

MEASUREMENTS AND WEIGHTS: Of type: wing, 153 mm.; weight, 158 grams. Weights of series: six males, 148-210 grams (average 183); six females, 158-189 grams (average 171). Measurements of the series are given in table 1.

REMARKS: Of the 12 specimens collected, six lack the neck band entirely, so that the neck and upper back are uninterrupted red, whereas in the other six there is a small area on the hind neck indistinctly suffused with violet and corresponding to the position of the band in other races. In *erythrothorax* from southeast New Guinea and in *rubensis* from the south slopes of the Snow Mountains the neck band is 2 to 3.5 cm. broad. Fly River birds, which Rand (1942) assigned to *rubensis* because of their smaller size and lighter under-tail coverts, have the band narrower (0.5 to 1.5 cm.), but it is still complete in 19 out of 20 specimens available for comparison. In the twentieth the band, though incomplete, is much more distinct than that in the new race. Of two specimens collected at the mouth of the Purari River (Port Romilly) by the first Archbold Expedition, the female lacks the band, but a small, incomplete band is present in the male. These Port Romilly specimens are close to the new race in size and in color of the under-tail coverts and may reasonably be assigned to it. There is one other specimen lacking the band, a female collected at Wuroi on the Oriomo River by the first Archbold Expedition. In other respects, however (lighter blue under-tail coverts and smaller size), the Wuroi specimen is close to *rubensis* and differs from the new race sufficiently to argue against its inclusion. Finally, Terborgh and I collected one male of this species on the Sena River at an elevation of 4000–4500 feet about 15 miles east of Karimui Patrol Post. This specimen has a complete neck band 1.8 cm. broad and is also larger than the Karimui specimens (wing, 167 mm.), so that it must be assigned to *erythrothorax*. The range of the new race thus appears to be a restricted area on the south coast between the range of *rubensis* and that of *erythrothorax*.

The absence of the neck band from this race is of interest in that it is also a character of the similar species *Domicella hypoinochrous*, which occurs in the Bismarck Archipelago and islands to the southeast of New Guinea and is sympatric with *Domicella lory* in southeast mainland New Guinea. The race of *Domicella lory* in this area (*erythrothorax*) has, of course, the neck band, and the range of *D. l. somu* lacking the band begins 150 miles to the west of the farthest western limit of *D. hypoinochrous*.

"Somu" is the name for this species in the Tudawhe language, spoken by the natives of Soliabeda.

***Aegotheles bennettii terborghi*, new subspecies**

TYPE: Museum of Comparative Zoology No. 286269; adult male; Karimui, Eastern Highlands District, Mandated Territory of New Guinea, 3650 feet; August 16, 1964; J. M. Diamond and J. W. Terborgh.

TABLE 2
COMPARATIVE MEASUREMENTS (IN MILLIMETERS) OF THE WING
IN THE NEW GUINEA RACES OF *Aegotheles bennettii*
AND *Aegotheles cristatus*
(Averages are given in parentheses.)

	Wing	Tail
<i>A. bennettii terborghi</i>		
Karimui		
1 male ^a	154	142
<i>A. bennettii bennettii</i>		
South coast of southeast New Guinea		
8 males	114, 119, 120, 120, 122, 123, 124, 128 (121)	99, 101, 104, 107, 108, 110, 110, 110 (106)
7 females	116, 124, 124, 125, 126, 126, 126 (124)	—, 110, 110, 112, 112, 117, 117 (113)
5 (sex ?)	120, 121, 121, 122, 126	102, 103, 107, 107, 107
<i>A. bennettii plumiferus</i>		
D'Entrecasteaux Archipelago		
1 male	114	105
2 females	116, 117	103, 104
<i>A. bennettii wiedenfeldi</i>		
Huon Peninsula and north coast of southeast New Guinea		
1 male	131	116
3 females	133, 135, 138 (135)	123, 124, 130 (126)
1 (sex ?)	131	119
<i>A. cristatus major</i>		
South New Guinea		
2 females	147, ^a 139	126, ^a 126
<i>A. cristatus (?) affinis</i>		
Arfak Mountains		
4 males	134, 135, 135, 135 (135)	110, 110, 110, 115 (111)
1 female	139	121

^aType specimen.

DIAGNOSIS: Differing from other races in considerably larger size (see table 2) and much darker, blacker upper parts. Pattern of markings close to that of *bennettii* and *wiedenfeldi*, but white freckling of back and upper wing coverts somewhat more distinctly organized into regular transverse pattern. Pattern of *plumiferus* differing from that of new form in this respect and also in having barring on breast much reduced and buffier below.

RANGE: Known only from the type locality.

REMARKS: The *Aegotheles bennettii* group of New Guinea was considered conspecific with the *Aegotheles cristatus* group of Australia, until the first and second Archbold Expeditions found that *Aegotheles cristatus major* and *Aegotheles b. bennettii* were sympatric on the Oriomo River in south New Guinea. The patterns of the races *bennettii* (south and southeast New Guinea) and *wiedenfeldi* are nearly identical to each other, related to that of *plumiferus* (D'Entrecasteaux Archipelago), and quite distinct from that of *major*. The taxonomic position of the race *affinis* (Arfak Mountains) is less certain, and it was formerly placed in *Aegotheles bennettii* but is now

TABLE 3
COMPARATIVE MEASUREMENTS (IN MILLIMETERS) OF THE WING AND TAIL
IN *Rhipidura leucothorax*
(Averages are given in parentheses.)

	Wing	Tail
<i>leucothorax</i> , northwest New Guinea, Vogelkopf, south slopes of Snow Mountains		
15 males	77-85 (80)	85-96 (90)
5 females	71-79 (75)	75-89 (81)
<i>episcopalis</i> , Kumusi River and Orangerie Bay (southeast New Guinea)		
6 males	79-83 (81)	92-99 (94.5)
1 female	71	84
<i>clamosa</i> , Karimui and Soliabeda		
3 males	78-79 (79)	86-91 (89)

assigned to *Aegotheles cristatus*. Despite the distinctness of the new race in size and darkness, the close similarity of the pattern to that of the other two mainland New Guinea races of *Aegotheles bennettii* leaves no doubt as to its affinities. From table 2 it appears that females of the other races average slightly larger than males, so that the unknown female of the new race may be even larger.

The unique type was brought in by a native, who said that he had found it sleeping on a branch during the day and had caught it by hand.

It is a pleasure to name this race for Dr. John W. Terborgh, its co-discoverer.

***Rhipidura leucothorax clamosa*, new subspecies**

TYPE: A.M.N.H. No. 786037; adult male; Soliabeda, Gulf District,

Papua, 2000 feet; July 28, 1965; J. M. Diamond.

DIAGNOSIS: Closest to *leucothorax*, but dark parts of plumage darker, blacker, and less brown, most notably on wings, and also on tail, breast band, flanks, belly, and back; *episcopalis* has back still paler than that of *leucothorax*. As seen in table 3, there is little difference in measurements.

RANGE: Karimui Basin and area immediately to the south.

MATERIAL: Soliabeda, two males; Karimui, one male.

MEASUREMENTS AND WEIGHTS: Of type (male, Soliabeda): wing, 79 mm.; tail, 89 mm.; weight, 19 grams. Other male, Soliabeda: wing, 78 mm.; tail, 86 mm.; weight, 20 grams. Male, Karimui: wing, 79 mm.; tail, 91 mm.

TABLE 4
COMPARATIVE MEASUREMENTS (IN MILLIMETERS) OF MALES OF *Myzomela eques*
(Averages are given in parentheses.)

	Wing	Tail	Culmen
<i>nymanni</i>			
Southeast New Guinea	71, 72, 72, 73, 75, 75, 75, 76, 77 (74)	54, 55, 56, 56, 56, 57, 58, 60, 61, 61 (57.4)	20, 21, 22, 22, 22, 22, 22, 24, 24 (22.1)
Fly River and Oriomo River	67, 68, 69, 69, 69, 70, 70, 72, 73 (69.7)	51, 52, 53, 53, 54, 54, 55, 55, 59 (54.0)	21, 21, 21, 21, 21, 21, 21, 22, (21.1)
South slope of Snow Mountains	70, 71, 71, 71, 71, 72 (71.0)	52, 54, 55, 56, 57, 57 (55.2)	22, 22, 22, 23, 23, 23 (22.5)
<i>karimuensis</i> , Karimui (type)	75	63	21

REMARKS: *Rhipidura leucothorax* provides another example of a species with a darker form at Karimui. Specimens collected by E. T. Gilliard in 1959 in the Adelbert Mountains and in 1954 on the Sepik River are no darker than *leucothorax* collected 30 to 50 years ago, so that post-mortem changes are unlikely to be involved.

This species remains within dense second-growth where it is difficult to observe but betrays its presence by a loud and distinctive song. In addition to the records for Soliabeda and Karimui, it was heard but not collected at one other locality in the Karimui Basin 6 miles southwest of Karimui at an elevation of 3700 feet.

Myzomela eques karimuensis, new subspecies

TYPE: A.M.N.H. No. 786038; adult male; Karimui, Eastern High-

lands District, Mandated Territory of New Guinea, 3650 feet; July 3, 1965; J. M. Diamond.

DIAGNOSIS: Nearest to *nymanni* from southeast New Guinea, but considerably darker than it or other four races; red of throat deeper and less orange; and tail somewhat longer (see table 4). Extent of red throat patch as in *nymanni*: i.e., more extensive than in *eques* or *primitiva*, and much more extensive than in *cineracea* (New Britain) or *rooki* (Rook Island), in which throat patch is often nearly absent.

RANGE: Known only from the type locality.

WEIGHT OF TYPE: 18 grams.

REMARKS: As is apparent from table 4, males of *nymanni* from south-east New Guinea have on the average longer wings and tails than do those from the Fly River and south slope of the Snow Mountains. The new race agrees with the southeastern birds in wing length, but the tail is longer than that in any *nymanni* specimen.

The unique type was among a group of 12 myzomelids of four different species, shot with bow and arrow by small native boys, who had probably climbed a tree to collect them. This species was observed several times at Karimui but always in the crowns of tall flowering trees, which probably explains why no other specimens were collected.

***Melidectes rufocrissalis gilliardi*, new subspecies**

TYPE: A.M.N.H. No. 786040; adult female; Camp 3, Mt. Karimui, Eastern Highlands District, Mandated Territory of New Guinea, 5100 feet; August 17, 1965; J. M. Diamond.

DIAGNOSIS: Similar to *rufocrissalis*, but forehead black, not white.

RANGE: Southern slopes of the Eastern Highlands from at least Okapa to Mt. Karimui, between 4200 and 8000 feet.

MATERIAL: Mt. Karimui: Camp 2 (4500 feet), one male, three females, one (sex ?); Camp 3 (5100 feet), four females, one (sex ?); Camp 4 (5800 feet), four males, one female; Camp 5 (6300 feet), four males, seven females, three (sex ?); Camp 6 (6900 feet), four males, two females; Camp 8 (7900 feet), one male, one female. Awande: six males, three females, three (sex ?).

MEASUREMENTS AND WEIGHTS: Of type: exposed culmen, 39 mm.; wing, 123 mm.; weight, 56.8 grams. Mt. Karimui: weight of males, 72.7–96.5 grams (average 82.8); females, 56–72.7 grams (average 63.9). Awande: weight of males, 70–81 grams (average 76.8); females, 58–61 grams (average 59.5). Measurements are given in table 5.

REMARKS: The relationships of the *Melidectes belfordi-rufocrissalis* honey-

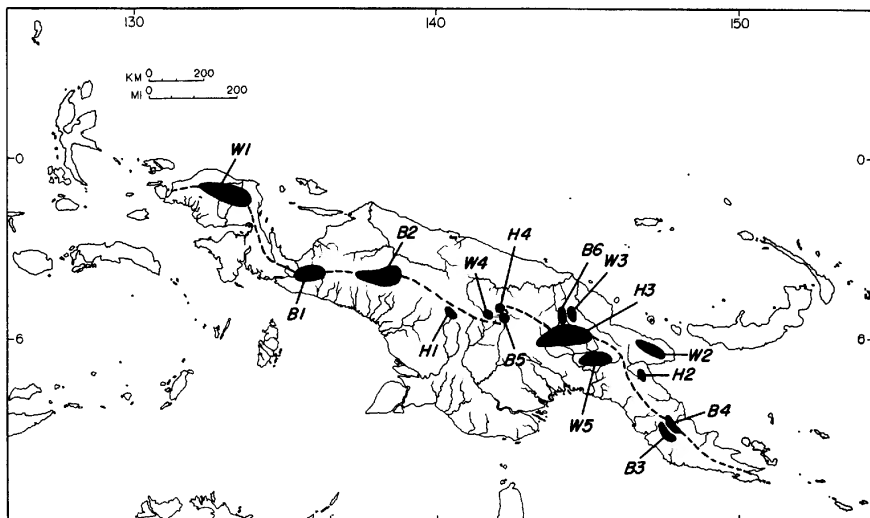


FIG. 1. Distribution of the known populations of honeyeaters of the *Melidectes rufocrissalis-belfordi* complex. The dotted line is the divide between the northern and southern watersheds. Symbols: W, wattle birds: W1, *M. leucostephes*, Arfak Mountains; W2, *M. foersteri*, Huon Peninsula; W3, *M. rufocrissalis rufocrissalis*, Schrader Range, Sepik Mountains; W4, *M. r. rufocrissalis*, Telefolmin (Hindenburg Mountains); W5, *M. r. gilliardi*, Eastern Highlands, Mt. Karimui to Okapa. B, black bills: B1, *M. belfordi joiceyi*, Weyland Mountains; B2, *M. b. kinneari*, Nassau and Oranje Mountains; B3, *M. b. brassi*, southeast New Guinea, low altitudes; B4, *M. b. belfordi*, southeast New Guinea, high altitudes; B5, *M. b. belfordi*, Telefolmin (Victor Emmanuel Mountains); B6, *M. belfordi* subsp., Schrader Range, Sepik Mountains. H, variable hybrid populations: H1, *M. b. griseirostris*, Mt. Goliath; H2, *M. b. stresemanni*, Herzog Mountains; H3, *M. belfordi* × *rufocrissalis*, Eastern Highlands (Mt. Giluwe, Mt. Hagen, Mt. Wilhelm, Wahgi-Divide Mountains); H4, *M. belfordi* × *rufocrissalis*, Telefolmin (Mittag Mountains). W5 and B6 are the new populations discovered since the last review of this group (Gilliard, 1959).

eaters were greatly clarified by the analyses of Mayr and Gilliard (1952) and of Gilliard (1959), who divided them into two groups: the "black bills" and the "wattle birds." "Black bills" are characterized by a black forehead and bill, white superciliary and ear coverts, blue face, small gape wattle, no throat wattle, gray-brown legs, and a low ratio of bill length to wing length. Populations occur with little variation along the central mountain axis of New Guinea from the Wharton Range in the southeast to the Weyland Mountains in the west (fig. 1), and all these populations are referred to the species *Melidectes belfordi*, consisting of four thinly differentiated races. The "wattle birds" are distinguished by a

TABLE 5
COMPARATIVE MEASUREMENTS (IN MILLIMETERS) OF *Melidectes rufocrissalis*
(Averages are given in parentheses.)

	Culmen	Wing
<i>rufocrissalis</i>		
Schrader Range		
5 males	41-43 (42)	134-141 (137)
5 females	36-41 (38.5)	119-128 (124)
Telefolmin		
1 male	43	136
<i>gilliardi</i>		
Mt. Karimui		
14 males	39-44 (41.5)	132-138 (135)
18 females	34-41 (38.5)	117-128 (124)
Awande		
6 males	40-43 (41)	133-137 (135)
3 females	38	120-129 (127)

white forehead, pale blue-gray bill, yellow superciliary and ear coverts, pale greenish face, large gape and throat wattles, pale blue-gray legs, and a high ratio of bill length to wing length. Prior to the discovery of the new race, wattle birds were known to occur on the northern watershed in three widely separated populations which were sufficiently distinct that they were considered as separate members of a superspecies: *M. leucostephes* of the Vogelkopf; *M. rufocrissalis*, known from two parts of the central range on the northern watershed (Telefolmin and the Schrader Range); and *M. foersteri* of the Huon Peninsula. This distribution suggested that the wattle birds were among the many New Guinea forms that originated as endemics of north New Guinea.

Where their ranges overlap in relatively undisturbed forest at Telefolmin, *M. belfordi* and *M. rufocrissalis* behave as good species, but they hybridize freely in areas with extensive habitat disturbance caused by native agriculture. For example, highly variable hybrid swarms were found in the densely settled Eastern Highlands on Mt. Hagen, Mt. Wilhelm, Mt. Giluwe, and the Wahgi-Divide Mountains. Hybrid races were also described from Mt. Goliath (*griseirostris*) and from the Herzog Mountains (*stresemanni*).

The new race is of interest as the first wattle-bird population from the southern watershed. It is indistinguishable in size (table 5) and coloration from *rufocrissalis* from Telefolmin and the Schrader Range, except for having a black forehead. In contrast to the great variability of the hybrid swarms from more northern parts of the Eastern Highlands and of

the hybrid races *griseirostris* and *stresemanni*, *gilliardi* is quite uniform: the black forehead as well as the yellow superciliaries and ear coverts, pale blue-gray bill and legs, and so on, are possessed by all 49 specimens. The Awande and Mt. Karimui series are virtually identical. In addition, Terborgh and I observed *Melidectes* honeyeaters, probably of this race, on Mt. Michael, about halfway between Awande and Mt. Karimui, in 1964.

The simplest explanation for the black forehead of *gilliardi* would be that it represents *belfordi* genes from earlier hybridization, since the three other wattle-bird populations all have white foreheads. Mayr and Gilliard (1952) showed that the hybrid swarms have a higher percentage of black foreheads than one would expect from the *belfordi* component of other characters. In the Herzog population (*stresemanni*) all specimens have black foreheads, although other traits are variable or intermediate (e.g., superciliaries yellow in 10 specimens, white in six). It is, nevertheless, puzzling that the new race occurs uniformly over this stretch of the southern watershed without showing any other indication of hybrid origin. If the black forehead is in fact derived from *belfordi* genes, this hybridization probably occurred considerably earlier than that leading to the variable Herzog and Wahgi populations, to allow time for elimination of other visible *belfordi* traits in this southern watershed race.

The other new information about the distribution of these honeyeaters comes from the discovery by Gilliard of a black-bill population in the Schrader Range of the northern watershed, the type locality of *rufocrissalis*. Of nine specimens that he collected on Mt. Kominjim in 1964, seven, obtained between 5000 and 7000 feet, are pure wattle birds (*rufocrissalis*), whereas two, from 7600 and 8300 feet, are pure black bills. Thus, in the Schrader Range, the two species are apparently able to coexist with complete altitudinal exclusion, as is also the case in several other closely related pairs of New Guinea mountain birds (e.g., *Crateroscelis murina* and *C. robusta*, *Epimachus fastosus* and *E. meyeri*, *Amblyornis macgregoriae* and *A. subalaris*, *Ptiloprora guisei* and *P. perstriata*, and others). Figure 1 brings an earlier (Gilliard, 1959, fig. 6) distributional map of this group up to date in the light of the two recent discoveries.

The new race is named for the late Dr. E. T. Gilliard in memory of his contributions to New Guinea ornithology, in particular to the unraveling of relations among these puzzling honeyeaters.

***Meliphaga mimikae bastille*, new subspecies**

TYPE: A.M.N.H. No. 786039; adult female; Karimui, Eastern High-

TABLE 6
COMPARATIVE MEASUREMENTS (RANGE AND AVERAGE, IN MILLIMETERS) OF *Meliphaga mimikae*

	Male		Female	
	Culmen	Wing	Culmen	Wing
		Tail		Tail
<i>granti</i>				
Southern slopes of southeast New Guinea	22.5-24	76-80	20-21	67-72
2 males, 3 females	(23.2)	(78)	(20.7)	(69)
<i>bastille</i>				
Southern slopes of Eastern Highlands	21-23	67-74	18.5-21.5	61-68
26 males, 39 females	(21.7)	(70)	(20.1)	(64.5)
<i>mimikae</i>				
Fly River	22-23	69-73	20-21	62-65
2 males, 3 females	(22.5)	(71)	(20.5)	(63)
Southern slopes of Snow Mountains	21	68	19.5-21	63-64
1 male, 3 females			(20)	(63.7)

lands District, Mandated Territory of New Guinea, 3650 feet; July 14, 1965; J. M. Diamond.

DIAGNOSIS: Coloration like that of *granti*, but size smaller (see table 6); similar in size to *mimikae*, but upper parts darker, and under parts darker and more mottled.

RANGE: Karimui Basin, area immediately to the south, and the Okasa pine forest; probably the southern slopes of the Eastern Highlands generally; between 2000 and 4200 feet.

MATERIAL: Karimui, 11 males, 15 females; Mt. Karimui, Camp 1 (4200 feet), four males, one female; Bomai, one male, 12 females; Soliabeda, five males, nine females; Okasa, one male, one female. The following additional material was prepared as skeletons: Karimui, five males, four females; Bomai, one female; Soliabeda, one male.

MEASUREMENTS AND WEIGHTS: Of type: exposed culmen, 17 mm.; culmen, 20 mm.; wing, 76 mm.; tail, 64 mm.; weight, 23.5 grams. Twenty-six males: exposed culmen, 17–20 mm. (average 18.1); weight, 24–32.5 grams (average 28.7). Thirty-nine females: exposed culmen, 15–18.5 mm. (average 16.8); weight, 22–29 grams (average 25.3). Other measurements given in table 6.

REMARKS: The new race occurs in the area between the ranges of the two previously described races, and agrees with the one in size and with the other in coloration. Rand (1936), in describing *granti*, gave measurements for three adult males and four adult females, which evidently include the specimens that I measured plus one additional specimen of each sex. The smallest male *granti* has a longer wing than that of 24 out of 26 males of the new race; the smallest female *granti* has a longer wing than that of 34 out of 39 females of the new race; *mimikae* is distinct from both *bastille* and *granti* in coloration. As noted by Rand (1942), birds from the Fly River assigned to *mimikae* have somewhat darker backs than toponotypical *mimikae* from the Snow Mountains, and in this respect show a tendency toward *bastille* and *granti*. However, they agree with *mimikae* in the paler, less mottled under parts. There are no consistent differences in size or coloration between the samples of *bastille* from different localities.

This has hitherto been considered an uncommon species. At Karimui it was one of the most abundant forest birds and the most common of the six closely similar species of genus *Meliphaga* encountered in the basin.

***Lonchura spectabilis gajduseki*, new subspecies**

TYPE: A.M.N.H. No. 786041; adult male; Karimui, Eastern High-

lands District, Mandated Territory of New Guinea; 3650 feet, July 3, 1965; J. M. Diamond.

DIAGNOSIS: Differing from other three races in that under parts of adult are buff of same depth of color as in immature, not white or white lightly washed with buff. In color of back closest to *spectabilis*, somewhat darker and less dull than *wahgiensis*, and considerably darker than *mayri*. In most individuals upper-tail coverts straw-colored like those of *wahgiensis* and *mayri*; in a few individuals somewhat more reddish ocher, but not so strongly so as in *spectabilis*.

The material available for comparison consisted of *spectabilis* from New Britain, Long Island, and Rooke Island; *mayri* from the vicinity of Hollandia, north New Guinea (Ifaar and the Cyclops Mountains); and *wahgiensis* from the Wahgi Valley (Nondugl and Kup) and Chimbu Valley (Keglsugl), Eastern Highlands.

RANGE: Known only from the Karimui Basin.

MATERIAL: Karimui: six adult males, four adult females, one immature (sex?). An additional two adult males, three immature (sex?), and one juvenile (sex?) were collected and prepared as skeletons.

MEASUREMENTS AND WEIGHTS: Wing: six adult males, 49–52 mm. (average 51, type 52); four adult females, 49–51 mm. (average 50); one immature (sex?), 51 mm. Weight: eight adult males, 10.5–12.7 grams (average 11.7, type 12.0); three adult females, 10.3–11.5 grams (average 10.9); four immature (sex?), 9.5–11.5 grams (average 10.8); one juvenile (sex?), 7 grams.

REMARKS: It is not surprising to find in the Karimui Basin a well-defined localized race of the genus *Lonchura*, which has many sharply localized endemic species in New Guinea (one species known only from the Anggi Lakes, three from south New Guinea between the Noord and Fly rivers, one from southeast New Guinea, one from the alpine grasslands of southeast New Guinea, two from the Snow Mountains).

In the adult the under parts of *spectabilis* are nearly white, with a faint buff wash in some individuals. Adults of *mayri*, and four of the five adult *wahgiensis* available for comparison, including the type, have the under parts whitish, with a faint buff wash. The remaining adult and one subadult of *wahgiensis* are light buff below, but still paler than any of the Karimui adults. Gyldenstolpe (1955), who collected a series of *wahgiensis* near Nondugl, also remarked that certain of his specimens have a more or less distinct buff wash below, the others being whitish. Immatures of all four subspecies are buff below but duller than the Karimui adults.

This finch was evidently breeding at Karimui during the relatively

dry period when collections were made, since all the males had enlarged testes. Adults have the head charcoal brown, nearly black, whereas the head of immatures is medium brown of the same depth of color as the back. Tightly knit flocks of the species were common in the grasslands of the Karimui Basin but were absent outside the basin at Soliabeda, 9 miles to the south of Karimui Patrol Post beyond Mt. Karimui. All my specimens were obtained in the vicinity of Karimui Patrol Post by local natives, who approached them by stealth and then either captured them by hand or knocked them down with sticks. The species was also found at Bomai in the western part of the basin, and, although no specimens were obtained, I was able to observe the flocks sufficiently closely to be sure that the black-headed adults as well as the immatures had buff under parts, so belonged to the new race.

This race is named in honor of Dr. D. Carleton Gajdusek of the National Institutes of Health, who first recognized the potential zoogeographical significance of the Karimui Basin as a tropical enclave within the Highlands.

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REFERENCES

- CAYLEY, N. W.
1959. What bird is that? Third edition. Sydney, Angus and Robertson.
- GILLIARD, E. T.
1959. The ecology of hybridization in New Guinea honeyeaters. *Amer. Mus. Novitates*, no. 1937, pp. 1-26.
- GYLDENSTOLPE, N.
1955. Notes on a collection of birds made in the Western Highlands, Central New Guinea, 1951. *Arkiv för Zool.*, ser. 2, vol. 8, pp. 1-181.
- MAYR, E., AND E. T. GILLIARD
1952. Altitudinal hybridization in New Guinea honeyeaters. *Condor*, vol. 54, pp. 325-337.
1954. Birds of central New Guinea. Results of the American Museum of Natural History expeditions to New Guinea in 1950 and 1952. *Bull. Amer. Mus. Nat. Hist.*, vol. 103, pp. 317-374.

RAND, A. L.

- 1936. Results of the Archbold Expeditions. No. 11. *Meliphaga analoga* and its allies. Amer. Mus. Novitates, no. 872, pp. 1-23.
- 1942. Results of the Archbold Expeditions. No. 42. Birds of the 1936-1937 New Guinea expedition. Bull. Amer. Mus. Nat. Hist., vol. 79, pp. 289-366.

SIMS, R. W.

- 1956. Birds collected by Mr. F. Shaw-Mayer in the Central Highlands of New Guinea 1950-1951. Bull. Brit. Mus. (Nat. Hist.), Zool., vol. 3, pp. 387-438.

STRESEMANN, R. W.

- 1914. Die Vögel von Seran (Ceram). Novitates Zool., vol. 21, pp. 25-153.
- 1925. Raubvogelstudien. XI. Weiteres über indo-australische *Accipiter*-Arten. Jour. f. Ornith., vol. 73, pp. 319-323.

